

**ABSTRACT**

Systems and methods handle air and rinsing fluid during fluid processing. The systems and methods eliminate air from a fluid processing system prior to, during, and after use. The systems and methods provide a connector assembly for establishing fluid flow from a fluid source. The connector assembly has discrete first and second passages that prevent communication between the fluid in first passage and the fluid in the second passage. Prior to system use, the connector assembly may be utilized in a priming function to remove residual air from a fluid circuit prior to use. The connector assembly may also be utilized after use to perform a rinse-back function.